

Remarks**Claim Rejections under 35 U.S.C. 102**

Claims 1 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Weidman (U.S. Pat. No. 5,664,037).

Regarding claims 1 and 9, Examiner concludes that Weidman discloses a WDM coupler system comprising all of applicant's claimed limitations of the present invention.

In response to these rejections, applicants have amended independent claim 1 by adding the limitation of claim 2 thereinto. In addition, independent claim 1 has been further amended by adding a limitation regarding a shape of the receiving sleeve. Both these amendments have been made in order to patentably define the claimed invention over the prior art cited by Examiner.

In response to the rejections, applicants now traverse as follows:

Weidman discloses a fiber optic coupling device (10, fig. 1). The fiber optic coupling device comprises a plurality of fibers (16) extending in a parallel array, at least two coupling regions (11, 12) along the length of said array where the cross-sectional area of said fibers (16) is smaller than the cross-sectional area of said fibers at the first and second ends (14, 15) of said array, wherein said fibers (16) and said coupling regions (11, 12) are formed such that light, which had been propagating in one of said fibers into a first of said coupling regions, and has separated in said first of said coupling regions so that it propagates in at least two of said fibers from said first of said coupling regions into a second of said coupling regions, does not interfere in said second of said coupling regions.

As regards claim 1, the present invention comprises: a plurality of optical fibers, a first fiber fusing with a second and third fibers and elongating to a length to form a first and second fusion regions at two different portions of the first fiber,

the second fiber extended from the first fusion region further fusing with a fourth fiber and elongating to a length to form a third fusion region; and

at least one receiving sleeve receiving the first, second and third fusion regions therein, the receiving sleeve having a cylindrical shape;

wherein a complex light signal having a plurality of wavelengths is transmitted from the first fiber to the first fusion region, a predetermined wavelength is separated and goes into the second fusion region, and is further separated from the second fusion region to the first fiber, the other wavelengths are transmitted to the third fusion region via the second fiber, and are further separated from the third fusion region to the second fiber.

The limitations of the at least one receiving sleeve receiving the first, second and third fusion regions therein, and the receiving sleeve having a cylindrical shape, are not disclosed in Weidman's WDM coupler system. In addition, the WDM coupler system disclosed by Weidman teaches a central dummy fiber 45 (FIG. 5, FIG. 6) in the first coupler 20 (FIG. 20), so that Weidman's first coupler 20 is a 3-fiber linear coupler. The present invention only comprises two fibers in the first fusion region 211; therefore, the present invention is simple and the volume is also reduced. Further, Weidman only discloses that a plurality of fibers (16) extends in a parallel array, and fails to disclose that the second fiber extending from the first fusion region further fuses with a fourth fiber. Thus, the invention of claim 1 is clearly different from and novel over that of Weidman.

Moreover, Weidman discloses that its fiber optic coupling device comprises a plurality of fibers (16) extending in a parallel array, and at least two coupling regions (11, 12) along the length of said array where the cross-sectional area of said fibers (16) is smaller than the cross-sectional area of said fibers at the first and second ends (14, 15) of said array. The cross-sectional area of the coupling regions of the present invention is the same as the cross-sectional area of said fibers at the first and second ends because the receiving sleeve has a cylindrical

shape. That is, *the principle of the present invention is quite different from that of Weidman.*

As regards claim 9, the present invention comprises: a plurality of optical fibers, a first fiber fusing with a second and third fibers and elongating to a length to form a first and second fusion regions at two different portions of the first fiber, the second fiber extending from the first fusion region further fusing with a fourth fiber and elongating to a length to form a third fusion region, in such way, the plurality of optical fibers forming a plurality of fusion regions;

wherein a complex light signal having a plurality of wavelengths is transmitted from the first fiber to the first fusion region, a predetermined wavelength is separated and goes into the second fusion region, and is further separated from the second fusion region to the first fiber extending from the second region, the other wavelengths are transmitted to the third fusion region via the second fiber, and a next predetermined wavelength is further separated from the third fusion region to the second fiber extending from the third region, and the plurality of fusion regions are capable of separating a plurality of wavelengths from the complex light signal.

Firstly, the WDM coupler system disclosed by Weidman contains *a central dummy fiber 45 (FIG. 5, FIG. 6) in the first coupler 20 (FIG. 20), so that Weidman's first coupler 20 is a 3-fiber linear coupler.* The present invention only comprises *two fibers in the first fusion region 211; therefore, the present invention is simple and the volume is also reduced.*

In addition, Weidman only discloses that *a plurality of fibers (16) extends in a parallel array, and fails to disclose that the second fiber extending from the first fusion region further fuses with a fourth fiber.*

Further, the present invention has *a plurality of optical fibers forming a plurality of fusion regions, whereas the WDM coupler system disclosed by*

Weidman only contains two fusion regions. That is, the principle of the present invention is quite different from that of Weidman.

In conclusion, applicants assert that independent claims 1 and 9 are patentable under 35 U.S.C. 102 over Weidman, and request reconsideration and removal of the rejections.

Further, applicants assert that the above-described differences between the structure of Weidman and the structure of amended claim 1 are unobvious, and that the above-described differences between the structure of Weidman and the structure of amended claim 9 are unobvious. Accordingly, allowance of amended claims 1 and 9 under 35 U.S.C. 103 is also respectfully requested.

Claim Rejections under 35 U.S.C. 103

Claims 2-8 and 10-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weidman (U.S. Pat. No. 5,664,037) in view of Xu (U.S. Pat. No. 6,788,852).

Applicants have canceled claim 2 without prejudice (see above). Claims 3-8 and 10-18 have been amended to more clearly express the claimed subject matter, and/or regarding various informalities.

In response to the rejection, applicants now traverse as follows:

Applicants assert that the relevant base claims, namely amended claim 1 and amended claim 9, are patentable under 35 U.S.C. 103 over Weidman in view of Xu, as follows:

Applicants refer to and rely on the above assertions regarding the patentability of amended claim 1 and amended claim 9 over Weidman under 35 U.S.C. 103.

As regards amended claim 1, **the limitations of at least one receiving sleeve receiving the first, second and third fusion regions therein, and the receiving**

sleeve having a cylindrical shape, are not disclosed in Weidman's WDM coupler system. In addition, Xu also fails to teach at least one receiving sleeve receiving the first, second and third fusion regions therein. Applicants acknowledge that Xu provides teaching as to an inner sleeve 114, which is used to receive a coupler package (FIG. 2), as stated by Examiner. However, as noted by Examiner, the sleeve 114 is only used for a single fiber coupler, whereas the sleeve of the present invention can be used for a plurality of fibers. Thus applicants respectfully submit that any additional teaching by Xu applied to the teachings of Weidman still fall short of leading one of ordinary skill in the art to provide the invention of amended claim 1. That is, amended claim 1 is submitted to be unobvious and patentable over Weidman in view of Xu.

On this basis, claims 3-8 should be allowable as being dependent on amended independent claim 1.

If further argument is needed, applicants assert as follows:

Regarding claim 3, the present invention includes applied glue *to the receiving sleeve* for fixing the optical fibers; thus, the optical fibers can be firmly attached to *the receiving sleeve* by the glue. Xu merely teaches the epoxy element per se, with no adhering sleeve. Accordingly, applicants assert that a combination of the two references fails to teach or suggest a WDM assembly including in particular the above-stated feature of gluing involving the receiving sleeve. That is, claim 3 is unobvious and patentable over the references.

Regarding claim 4, the present invention further includes at least one shrink sleeve which encloses the receiving sleeve therein. Weidman fails to disclose this feature. Moreover, in the specification as amended by applicants, it is disclosed that the shrink sleeves 50 can be shrunk by heating, so that the first

and second receiving sleeves 30, 40 can be fixed in the shrink sleeves 50 by heating. As indicated by Examiner, Xu does not teach or suggest shrink sleeves. Accordingly, applicants assert that a combination of the two references fails to teach or suggest a WDM assembly including in particular the above-stated feature of the at least one shrink sleeve. That is, claim 4 is unobvious and patentable over the references.

Claims 5 and 6 each depend upon claim 4, and therefore should also be patentable. Claim 7 depends upon claim 6, and therefore should also be patentable.

As regards amended claim 9, the limitation of at least one receiving sleeve receiving the fusion regions therein is not disclosed in Weidman's WDM coupler system. In addition, Xu also fails to teach at least one receiving sleeve receiving the fusion regions therein. Applicants acknowledge that Xu provides teaching as to an inner sleeve 114, which is used to receive a coupler package (FIG. 2), as stated by Examiner. However, as noted by Examiner, the sleeve 114 is only used for a single fiber coupler, whereas the sleeve of the present invention can be used for a plurality of fibers. Thus applicants respectfully submit that any additional teaching by Xu applied to the teachings of Weidman still fall short of leading one of ordinary skill in the art to provide the invention of amended claim 9. That is, amended claim 9 is submitted to be unobvious and patentable over Weidman in view of Xu.

On this basis, claims 10-19 should be allowable as being dependent on amended independent claim 9.

If further argument is needed, applicants assert as follows:

Regarding claim 10, this has been amended by particularizing the fusion

regions and adding a limitation of a shape of the receiving sleeve. The limitations of at least one receiving sleeve receiving the first, second and third fusion regions therein, and the receiving sleeve having a cylindrical shape, are not disclosed in Weidman's WDM coupler system. In addition, Xu also fails to teach at least one receiving sleeve receiving the first, second and third fusion regions therein. Accordingly, applicants assert that a combination of the two references fails to teach or suggest a WDM assembly including in particular the above-stated features of the at least one receiving sleeve. That is, claim 10 is unobvious and patentable over the references.

Regarding claim 11, the present invention includes applied glue *to the receiving sleeve* for fixing the optical fibers; thus, the optical fibers can be firmly attached *to the receiving sleeve* by the glue. Xu merely teaches the epoxy element per se, with no adhering sleeve. Accordingly, applicants assert that a combination of the two references also fails to teach or suggest a WDM assembly including in particular the above-stated feature of gluing involving the receiving sleeve. That is, claim 11 is unobvious and patentable over the references.

Further and in any event, applicants refer to and rely on the above assertions regarding patentability of amended claim 10 over Weidman in view of Xu under 35 U.S.C. 103. Because claim 11 depends upon amended claim 10, claim 11 should likewise be patentable over Weidman in view of Xu under 35 U.S.C. 103.

Regarding claim 12, the present invention includes at least one shrink sleeve enclosing the receiving sleeve therein. Weidman fails to disclose this feature. Moreover, in the specification as amended by applicants, it is disclosed that the shrink sleeves 50 can be shrunk by heating, so that the first and second receiving sleeves 30, 40 can be fixed in the shrink sleeves 50 by heating. As indicated by

Examiner, Xu does not teach or suggest shrink sleeves. Accordingly, applicants assert that a combination of the two references fails to teach or suggest a WDM assembly including in particular the above-stated feature of the at least one shrink sleeve. That is, claim 12 is unobvious and patentable over the references.

Further and in any event, applicants refer to and rely on the above assertions regarding patentability of amended claim 10 over Weidman in view of Xu under 35 U.S.C. 103. Because claim 12 depends upon amended claim 10, claim 12 should likewise be patentable over Weidman in view of Xu under 35 U.S.C. 103.

Accordingly, claim 13 and claim 14 which each depend upon claim 12 should be patentable. In addition, claim 15 which depends upon claim 14 should also be patentable.

As regards claims 16-19, claims 16-18 have been amended to more clearly express the claimed subject matter, and/or in respect of various informalities. The method claims contain limitations corresponding to the structural limitations in amended claims 3, 4 and 7, and in claims 9, 11 and 13. Applicants refer to and rely on the above assertions regarding patentability of amended claims 3, 4 and 7, and amended claims 9, 11 and 13 over Weidman in view of Xu under 35 U.S.C. 103. For similar reasons, it is submitted that claims 16-19 are also patentable over Weidman in view of Xu under 35 U.S.C. 103.

A new claim 20 has been added, which represents certain subject matter removed by amendment to claim 16. Claim 20 depends upon claim 16, and therefore should also be patentable.

The substitute specification contains no new matters.

In view of the above remarks, the subject application is believed to be in a condition for allowance, and an action to such effect is earnestly solicited.

Respectfully submitted,
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